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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/726,125 | 12/02/2003 | Rui M. Bastos | NVDA P000600 | 3536 |

26291 7590 06/23/2005

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| EXAMINER |
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LUU, MATTHEW

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| ART UNIT | PAPER NUMBER |
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2676

DATE MAILED: 06/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/726,125

Applicant(s)

BASTOS ET AL.

Examiner

LUU MATTHEW

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson et al (US 2002/0140706).

Regarding claims 1, Peterson discloses (Figs. 2 and 6) a method of determining sub-pixel sample positions for a pixel position to reducing aliasing, comprising:

reading a first sub-pixel offset value and a second sub-pixel offset value (Fig. 6 shows the reducing the distance (offset value) between two samples) (Section 33, lines 5-10); and

computing a jittered sub-pixel sample position using the first sub-pixel offset value, the second offset value, and the pixel position (Section 44, lines 1-11).

The only difference between the disclosure of Peterson and the claimed invention is that the claim 1 requires the offset values are programmable.

However, since Peterson also mentions that "In effect, when a pattern is applied to a pixel, different pseudo-random or random offsets, varying independently in x and y, are added to the coordinates of each sample position, before the samples are calculated" (Section 44, lines 7-11), it would have been obvious to a person of ordinary

skill in the art to recognize that these offsets values are "programmed" to be selected randomly.

Regarding claims 2 and 3, since Peterson also mentions "sampling positions are altered at the sub-pixel level" (Section 44, line 7), it is obvious to the person of ordinary skill in the art to recognize that the offset value is partially based on at least a portion of the pixel position which is "a sub-pixel position".

Regarding claim 4, Peterson further teaches the repetition of applying sampling patterns (Section 40). Peterson also teaches "More specifically, multi-sampling systems for anti-aliased rendering user sample values from multiple samples taken from a pixel region in determining the value of the respective pixel" (Section 7, lines 3-6). Therefore, it is obvious to the person of ordinary skill in the to recognize that the "rendering process" is the process of repetition.

Claim Rejections - 35 USC § 103

Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson in view of McNamara et al (US 2003/0122829).

Regarding claim 5, Peterson fails to explicitly teach computing a depth value of a fragment for each jittered sub-pixel sample position.

However, McNamara teaches computing a depth value for a fragment for each sub-pixel sample position (Section 3). Therefore, it would have been obvious to the person of ordinary skill in the art to use the method of computing a depth value for a fragment for each sub-pixel sample position into the method of determining sub-pixel

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sample positions for a pixel position of Peterson since this is conventional in the art.

Furthermore, it is well known in the art that a graphics accelerator can convert an object into primitives and then into fragments.

Regarding claim 6, McNamara teaches (Figs.10, 11 and 25-28) the step of determining sub-pixel sample coverage for a fragment associated with the pixel position.

Regarding claim 7, McNamara teaches computing a color value of a fragment (Section 3).

Regarding claim 8, McNamara teaches computing a color value of a fragment at a sub-pixel position within a pixel boundary (Section 3).

Regarding claim 9, McNamara teaches computing a color value of a fragment at a pixel position within a pixel boundary (Section 3). Furthermore, it is well known in the art that a pixel can be divided into smaller sub-pixels.

Regarding claim 10, McNamara teaches computing a color value of a fragment for each sample position (Section 3). The jittered sub-pixel is disclosed by Peterson as set forth above with regarding to the rejection of claim 1.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

-Naegle et al (US 2001/0033287) disclose (Figs. 5, 8, 9, 10) a graphics system having a super-sampled sample buffer which utilizes a window ID to specify pixel characteristics.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUU MATTHEW whose telephone number is (571) 272-7663. The examiner can normally be reached on Flexible Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BELLA MATTHEW can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Luu



MATTHEW LUU
PRIMARY EXAMINER